



ENGINEERING
TESTING, INC.

FAX TRANSMISSION

AMERICAN ENGINEERING TESTING, INC.

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To: Wayne Wambold Date: 10/11/05
Company: SEIT Pages: 5 including this cover sheet
Fax No.: 651-490-2150 From: PAT FRANCIS
Phone No.: _____ Phone No.: 651-659-1356
AET Job No. _____
Subject: PRELIMINARY BORING LOGS
Comments: Any QUESTIONS, PLEASE CALL

THANKS
PAT

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AGS714(06/01)



AMERICAN
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TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: 01-02601		LOG OF BORING NO. OB-1 (p. 1 of 2)								
PROJECT: Nova Off Axis Site; Near Orr, MN										
DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS			
							REC %	RQD IN.	RQD %	
1	FILL, mostly silty sand, a little gravel, possible cobble, brown and dark brown	FILL	12	M	SS	20				
2	SILTY SAND, a little gravel, fine to medium grained, brown, moist, medium dense (SM)	COARSE ALLUVIUM	50/8	M	SS	8				
3	SAND WITH SILT AND GRAVEL, fine to medium grained, brown, moist, very dense (SP-SM/SM)									
4										
5			50/2	M	SS	1				
6										
7										
8	Granite				NQ3	62	99	62	99	
9										
10										
11	Weathering: Generally fresh to 6.5' then slightly weathered to 6.6' then fresh to 14.2' then slightly weathered to 14.3' then very weathered to 14.4' then slightly weathered to 14.5' then fresh to 18.6' then slightly weathered to 19.4' then fresh to then fresh to 31.0' then slightly weathered to 31.6' then fresh to 53.4' then slightly weathered to 54' then fresh	GIANTS RIDGE			NQ3	60	100	58	97	
12										
13										
14										
15										
16	Discontinuities: Shallower low angle joints observed 6.3', 6.6', 14.4', 14.5', 19.3', 31.1', 31.3', 31.5' and 53.5'. Steep or high angle joints observed 5.5', 8.6', 10.7' and 52.6'				NQ3	58	97	57	95	
17										
18										
19										
20	Color: Gray and pink specked, some black									
21	Hardness: Very hard with zones of moderately hard at 14.3', 19.4' and 31.5'. A zone of soft at 14.4'.									
22										
23					NQ3	60	100	60	100	
24										
25										
26	PRELIMINARY SUBJECT TO CHANGE									
27										
28					NQ3	60	100	60	100	
29										
30										
31										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS						NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG	
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL		WATER LEVEL
0-5.3'	6-5/8" HSA								
5.3-55.7'	NQ								
BORING COMPLETED: 9/19/05									
DR: SS LG: SG Rig: 91C									

06/04



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SUBSURFACE BORING LOG

AET JOB NO: <u>01-02601</u>		LOG OF BORING NO. <u>OB-1 (p. 2 of 2)</u>								
PROJECT: <u>Nova Off Axis Site; Near Orr, MN</u>										
DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS			
							REC %	RQD IN.	RQD %	
33	Granite Weathering: Generally fresh to 6.5' then slightly weathered to 6.6' then fresh to 14.2' then slightly weathered to 14.3' then very weathered to 14.4' then slightly weathered to 14.5' then fresh to 18.6' then slightly weathered to 19.4' then fresh to then fresh to 31.0' then slightly weathered to 31.6' then fresh to 53.4' then slightly weathered to 54' then fresh Discontinuities: Shallower low angle joints observed 6.3', 6.6', 14.4', 14.5', 19.3', 31.1', 31.3', 31.5' and 53.5'. Steep or high angle joints observed 5.5', 8.6', 10.7' and 52.6' Color: Gray and pink specked, some black Hardness: Very hard with zones of moderately hard at 14.3', 19.4' and 31.5'. A zone of soft at 14.4'.	GIANTS RIDGE			NQ3	60	100	55	92	
34					NQ3	59	98	59	98	
35										
36										
37										
38										
39										
40										
41										
42										
43					NQ3	61	102	61	102	
44										
45										
46										
47										
48					NQ3	58	97	58	97	
49										
50										
51					NQ3	9	107	9	107	
52										
53										
54					NQ3	51	99	51	99	
55										
END OF BORING										
PRELIMINARY SUBJECT TO CHANGE										



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SUBSURFACE BORING LOG

AET JOB NO: **01-02601**

LOG OF BORING NO. **OB-2 (p. 1 of 2)**

PROJECT: **Nova Off Axis Site; Near Orr, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS			
							REC %	RQD IN.	RQD %	
1	FILL, mostly silty sand, a little gravel, possible cobbles, trace roots, brown and black	FILL	15	M	SS	17				
2	SILTY SAND, a little gravel, possible cobbles, fine to medium grained, brown mottled, moist, medium dense (SM)	COARSE ALLUVIUM	14	M	SS	11				
3										
4										
5	SILTY SAND WITH GRAVEL, fine to medium grained, brown, moist, dense to very dense (SM)		38	M	SS	16				
6										
7										
8			69	M	SS	14				
9										
10	SAND WITH SILT AND GRAVEL, possible cobbles, fine to medium grained, brown, moist, dense (SP-SM)	GIANTS RIDGE	44	M	SS	17				
11										
12			38	M	SS	9				
13										
14	SILTY SAND, a little gravel, fine to medium grained, brown, moist, very dense (SM)		65/6	M	SS	6				
15										
16										
17	Granite				NQ3	60	100	60	100	
18										
19	Weathering: Fresh									
20										
21	Discontinuities: Shallower low angle joints observed 15.9', 16.3', 21.7', 33.0', 36.5', 43.7', 47.2', 51.8', 59.6' and 61.1'. Steep or high angle joints observed 60.3'.				NQ3	60	100	60	100	
22										
23										
24	Color: Pink, black and gray specked									
25	Hardness: Very hard									
26										
27	PRELIMINARY				NQ3	62	103	62	103	
28	SUBJECT TO CHANGE									
29										
30										
31										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
0-15'	4.25" HSA	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
15-65'	NQ	9/20/05	8:09	11.0	9.5	10.5		9.8	
BORING COMPLETED: 9/20/05									
DR: SS LG: SG Rig: 91C									



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SUBSURFACE BORING LOG

AET JOB NO: **01-02601**

LOG OF BORING NO. **OB-2 (p. 2 of 2)**

PROJECT: **Nova Off Axis Site; Near Orr, MN**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS			
							REC %	RQD IN.	RQD %	
33					NQ3	60	100	60	100	
34										
35	Granite									
36										
37	Weathering: Fresh									
38					NQ3	59	98	59	98	
39										
40	Discontinuities: Shallower low angle joints observed 15.9', 16.3', 21.7', 33.0', 36.5', 43.7', 47.2', 51.8', 59.6' and 61.1'. Steep or high angle joints observed 60.3'.	GIANTS RIDGE								
41										
42										
43	Color: Pink, black and gray specked				NQ3	61	102	61	102	
44	Hardness: Very hard									
45										
46										
47										
48					NQ3	59	98	59	98	
49										
50										
51										
52										
53	PRELIMINARY SUBJECT TO CHANGE				NQ3	61	102	61	102	
54										
55										
56										
57										
58					NQ3	56	93	56	93	
59										
60										
61										
62					NQ3	31	99	31	99	
63										
64					NQ3	31	108	31	108	
65	END OF BORING									

06/04